

EXHIBIT D



DEPARTMENT OF THE NAVY
NAVAL SEA SYSTEMS COMMAND
1333 ISAAC HULL AVE SE
WASHINGTON NAVY YARD DC 20376-0001

IN REPLY REFER TO
4730
Ser 04X/036
28 OCT 2020

From: Commander, Naval Sea Systems Command (SEA 04)
Subj: TAG-OUT USERS MANUAL, NAVSEA 0400-AD-URM-010, REVISION 08
Ref: (a) NAVSEA 0400-AD-URM-010 Rev 07
Encl: (1) NAVSEA 0400-AD-URM-010/TUM, Rev 08

1. Purpose. This letter issues the rewrite of the TAG-OUT Users Manual (TUM).

2. Discussion.

a. Enclosure (1) supersedes reference (a).

b. Interpretation issues and expectations have been clarified, and standardized procedures are incorporated into this revision.

c. This revision provides clarification for the operational differences between Electronic Shift Operations Management System (ESOMS) and ETAGOUT.

d. This revision to the TUM will be hosted electronically at:
<https://www.submepg.csd.disa.mil/jfmm/TUM.htm> and at
<https://mercury.tdmis.navy.mil>. Electronic forms are available at
<https://navalforms.daps.dla.mil/web/public/forms>.

3. Action.

a. Replace reference (a) with enclosure (1) in its entirety.

b. If maintaining a hard copy of this manual, remove and destroy existing revision 7.

c. Request the Joint Fleet Maintenance Manual (JFMM) Manager at Submarine Maintenance Engineering, Planning and Procurement (SUBMEPP) and the Naval Systems Data Support Activity update their applicable sites with this revision, and include it in the next editions of JFMM and Monthly Ship Initial Distribution CD-ROMs, respectively. The electronic file will be uploaded separately. Note that electronic and paper forms have different national stock numbers for the same form number.

d. Private Shipyards. The action taken by this manual revision is considered by the Naval Sea Systems Command (NAVSEA) to be within the scope of existing contracts, and no change in contract delivery or completion dates or in current negotiated price or amount of any Government contract is authorized. If the Contractor considers that implementation of this manual revision requires a contract change, the Contractor should not implement such part but should promptly, and in any event within 30 days of receipt of this manual revision, notify the Contracting Officer in writing via the Supervisor of Shipbuilding of the facts and reasons for considering that a contract change is required. In addition to revising local instructions, contractors



US000592

Subj: TAG-OUT USERS MANUAL, NAVSEA 0400-AD-URM-010, REVISION 08

are requested to review all NAVSEA approved documents under their cognizance and determine if changes are needed to fully implement this manual revision. Changes to NAVSEA approved documents should be recommended to this contract change where the base document is used.

4. Implementation. Fleet Forces, Naval Supervising Authorities and other work authorizing activities are to implement this change when operationally feasible. Both ships and repair activities working aboard should use the same revision.

5. Engineering Manager for the TUM is Mr. William (Bill) Gembach, SEA 04X6, at (202) 781-4345 or william.gembach@navy.mil.

P. Colahan
P T. COLAHAN
By direction

Distribution:

FKP7 NAVSHIPYDS (Codes 200, 246, 290, 300)

FKP8 SUPSHIPS

CNRMC

SFR (Norfolk, Pearl Harbor, Portsmouth, Puget Sound)

Engineering Field Representatives (Southeast, Newport News)

SUBMEPP Portsmouth

Naval Systems Data Support Activity Port Hueneme

TRF Kings Bay

General Dynamics Electric Boat

Northrop Grumman Shipbuilding-Newport News

Naval Systems Data Support Activity Port Hueneme

COMUSFLTFORCOM

COMPACFLT

COMNAVAIRLANT

COMNAVAIRPAC

COMNAVSURFLANT

COMNAVSURFPAC

COMSUBLANT

COMSUBPAC

NAVSAFECEN

NRRO (Norfolk, Pearl Harbor, Portsmouth, Puget Sound, Groton, Newport News)

Blind copy to:

SEA 00C

SEA 04R

SEA 04X

SEA 04RM

SEA 04RS

SEA 04Z

SEA 05S

SEA 08D

SEA 21AR

S0400-AD-URM-010/TUM

NSN 0910-LP-110-8193

REVISION 08

NAVSEA TECHNICAL PUBLICATION

**TAG-OUT USERS
MANUAL**



**DISTRIBUTION STATEMENT A: APPROVED FOR PUBLIC RELEASE;
DISTRIBUTION UNLIMITED**

THIS REVISION SUPERSEDES REVISION 07 ACN 1/A OF 12 JUL 2016 ACN 2/A OF 20 DEC 2018

Published by direction of Commander, Naval Sea Systems Command

28 OCT 2020

US000594

(This Page Intentionally Left Blank)

NAVSEA TECHNICAL MANUAL CERTIFICATION SHEET				1 of 6	
Certification Applies to:	New Manual	Revision	Change		
Applicable TMINS/Pub. No.	NAVSEA S0400-AD-URM-010/TUM				
Publication Date (Mo, Da, Yr)					
Title: <u>TAG-OUT USERS MANUAL</u>					
TMCR/TMSR/Specification No: <u>N/A</u>					
CHANGES AND REVISIONS:					
See next page.					
Equipment Alteration Numbers Incorporated: <u>N/A</u>					
TMDER/ACN Numbers Incorporated: <u>Rev 7 ACN 1/A, ACN 2/A, N00024-16-MR01, N4523A-14-JF01, N4523A-12-BB02, N4523A-12-BB03, N4523A-12-BB04, N4523A-12-BB09, N4523A-12-BB10, N4523A-11-BB02, N4523A-11-BB03, N4523A-11-BB04, N4523A-11-BB08, N4523A-11-BB11, N4523A-11-BB12, N4523A-10-BB01, N4523A-10-BB16, N4523A-10-BB17, N4523A-10-BB18, N4523A-10-BB22, N4523A-10-BB25, N4523A-10-BB26, N4523A-10-EB16, N4504-11-CH11, N50054-12-GG01, N50054-15-0025, N55236-15-RN15, N64168-13-0001, N65540-14-SC13, N65540-14-SC14, N65540-14-SC15, N65540-14-SC16, N65540-14-SC17, N65540-14-SC18, N65540-14-SC19, O90613-10-PC10</u>					
<i>Continue on reverse side or add pages as needed.</i>					
CERTIFICATION STATEMENT					
This is to certify that responsible NAVSEA activities have revised the above identified document for acquisition compliance, technical coverage, and printing quality. This form is for internal NAVSEA management use only, and does not imply contractual approval or acceptance of the technical manual by the Government, nor relieve the contractor of any responsibility for delivering the technical manual in accordance with the contract requirement.					
Authority	Name	Signature	Organization	Code	Date
Acquisition	William Gembach	/s/ W.Gembach	NAVSEASYSCOM	04X6	28Oct20
Technical	William Gembach	/S/ W.Gembach	NAVSEASYSCOM	04X6	28Oct20
Printing Release	N/A	N/A	N/A	N/A	N/A

NAVSEA TECHNICAL MANUAL CERTIFICATION SHEET

Page 2 of 6

CHANGES AND REVISIONS:

The purpose of this revision is to incorporate multiple Advanced Change Notices (ACNs) and Technical Manual Deficiency/Evaluation Reports (TMDERs). Significant changes are as follows:

1. General – Updated List of Effective Pages.
2. General – Updated Table of Contents.
3. Added new reference (l) to include MIL-STD-1625, Safety Certification Program for Drydocking Facilities and Shipbuilding Ways for U.S. Navy Ships.
4. Added new reference (g) to include NAVSEA 0989-150-0000 Standard Navy Nuclear Valves.
5. Added Paragraph 1.2.b – Added guidance for tag-outs on “smart” ships.
6. Added Paragraph 1.2.c.(1) –Added guidance for U.S. Military Diving Commands per guidance established by OPNAVINST 3150.27 (series), which states that Dive Lockers, regardless of location, currently utilize the TUM for hazardous energy control when performing diving equipment maintenance.
7. Added Paragraph 1.2.c.(2) - Added guidance for “craft” where there are either no Ship’s Force personnel assigned or not enough Ship’s Force personnel assigned to do the maintenance to hang tags IAW the TUM. The TUM does not meet the requirements of reference (a) unless the “craft” has a Commanding Officer and assigned crew. If the TUM is used in situations for which there is NOT a crew, the command must take additional steps IAW reference (a). This change allows alternate methods that are currently in use at some commands, which meet the requirements of reference (a).
8. Previous Paragraph 1.3.3.a – Deleted. This requirement moved to Paragraph 1.4.1. Renumbered follow on paragraphs in 1.3.3.
9. Paragraph 1.3.3.a.3 – Added clarification to the expected RA required actions to verify that tag-outs are accurate and adequate.
10. Paragraph 1.4.1 – Added requirements of previous Paragraph 1.3.3.a to personnel indoctrination and training requirements.
11. Paragraph 1.5.2.b.(4).(b) – added to the definition of multiple line items to include if line items are from different databases (e.g. on CVNs Propulsion Plant and Topside)
12. Added Paragraph 1.5.2.g – Added a previous requirement that tags of color, size, and shape to danger or caution tags will not be used for any purpose onboard ships or craft.
13. Paragraph 1.6.a – Added amplifying guidance for when a temporary identification tag shall be used.
14. Paragraph 1.6.1.b – Adjusted line item numbering convention to allow for more space within the Electronic Tag-out Program for description of the work and made the date requirement optional as space in the data entry block in some electronic tag-out programs is limited.
15. Paragraph 1.6.1.f.(1).(c).4. – Substituted “Installed” for “Locked Shut” to more accurately indicate that the component locking device is installed.
16. Paragraph 1.6.4.a.(1) - Added amplifying guidance for when a temporary identification tag should be used.

NAVSEA TECHNICAL MANUAL CERTIFICATION SHEET

Page 3 of 6

17. Added Paragraph 1.6.4.a.(6) – Added procedure for hanging tags on five through sixteen inch parallel disc gate valves that require soft-seating. Renumbered follow on paragraphs in 1.6.4.a.
18. Deleted Paragraph 1.6.5.a.(4) Missed in Revision 07, labels for Caution Tag amplifying instructions and the LIRS statement are printed from the same electronic entry and, therefore, cannot be different.
19. Added NEW Paragraph 1.6.5.a.(4) – Added procedure for checking tags on a soft-seated parallel disc gate valve. Renumbered follow on paragraphs in 1.6.5.a.
20. Added Paragraph 1.7.3.a. NOTE – Added allowance for raising a mast with a danger-tagged clamp to perform a drift test.
21. Added Paragraph 1.7.4.b.(3) – Added allowance for auditing non-nuclear tags that are blocked by interferences, matching the exception in Appendix H Paragraph 5.b.(3) for nuclear tags. Renumbered follow on paragraphs in 1.7.4.b.
22. Added Paragraph 1.7.4.b.(6).(b) – Added requirement that tag-out audits involving typical Navy fuse panels include a visual inspection for the condition of the fuses. Renumbered follow on paragraphs in 1.7.4.b.(6).
23. Added Paragraph 1.7.6 – Clarified the requirement for the Shipyard/RMC to monitor SF execution of the tag-out program.
24. Paragraph 1.8.2.c.(2) – Modified to incorporate eTAG-OUT.
25. Paragraph 1.8.3 – Added requirement for the Authorizing Officer to verify all tag clearance was accomplished correctly prior to repositioning of components, unless immediate repositioning is required.
26. Added Paragraph 1.9 and 1.9.1 – Added to incorporate TUM Rev 07 ACN 1/A actions for validating database and correcting issues if “ghost” tags are found.
27. Appendix A – Added the terms ISIC, LMA, NSA, TYCOM, to the list of acronyms.
28. Appendix B – Added the definitions of LMA, NSA, Component Contractor, Certified Line Item/Certified Tag-out, and Smart Ship.
29. Appendix C – Added allowance for RA tag-out when transfer of system operational control is approved by SF. This allows the shipyard to perform required operations and tag-outs until the test is complete and turn the system back to SF. Project MOAs will define the strategies.
30. Appendix E Paragraph 1.b – Clarified when the RA representative will act as the diving activity for diver’s tags. Clarified divers or RA representative responsibilities when another RA has already signed tags.
31. Appendix E Paragraph 1.f (1) – Clarified which underwater electrical equipment must be tagged. Added Reference (j) Appendix 1A for guidance.
32. Appendix E Paragraph 1.f – Moved the requirements for multi-zone Impressed Current Cathodic Protection (ICCP) to Appendix E Paragraph 1.g and renumbered subsequent paragraphs. Clarified the requirement to tag-out ICCP be per the US Navy Diving Manual.
33. Appendix E Paragraph 1.f (3) – Clarified the Diving Supervisor will determine what underwater moving equipment must be tagged.
34. Added Appendix E Paragraph 1.i – Added clarification of procedure used if diver’s tags are hung prior to divers being onboard to perform RA checks of tags.

NAVSEA TECHNICAL MANUAL CERTIFICATION SHEET

Page 4 of 6

35. Appendix E Paragraph 8 split into two paragraphs (reformatted to para. 1.j and para. 1.k) to support independent statements.
36. Appendix F Paragraph 3.b(3) – Added clarification of procedure to be used when transitioning to a more restrictive component position.
37. Appendix F Paragraph 3.b(4) – Added clarification to lock wiring priority and basic requirements for using a lower “preferred” method of lock wiring a component.
38. Appendix F Paragraph 3.d(1)(d) – Added clarification of what components must be tagged to prevent inadvertent operation of a solenoid operated control valve.
39. Appendix F Paragraph 3.e – Added clarification of when a remote operator for a valve should reflect the position of the remote operator and the valve it operates.
40. Appendix F Paragraph 3.f – Added clarification to determine when temporary equipment are considered “safety measures/devices” and therefore, should be danger tagged.
41. Added Appendix F Paragraph 3.g – Added clarification to the requirement to danger tag hand operated equipment if the worker does not have exclusive control of the hand pump/operator during the maintenance.
42. Appendix F Paragraph 4.c.(1) – Added clarification of the requirement to hang tags on electrical breakers that can be operated locally and remotely.
43. Appendix F Paragraph 4.c.(3) – Added requirement to have electrical breakers with spring charged operating mechanisms, are to have fuses removed, tagged, and closing springs discharged, as required by Reference (h).
44. Appendix F Paragraph 4.d – Removed requirement for switches to be tagged for awareness, which is not an inherent safety function, if they cannot exercise control of equipment once that equipment is tagged out and electrically isolated by other means.
45. Appendix F Paragraph 4.g – Added clarification that the exception for troubleshooting and simple maintenance.
46. Appendix F Paragraph 5.b - Added amplifying guidance for when a temporary identification tag shall be used.
47. Appendix G Paragraph 2.b – Added “valve orientation verification” to the applicability of this appendix for nuclear powered ships and prototypes.
48. Appendix G Paragraph 4.k – added “shaft seal inflatable boot (when properly inflated)” as an allowable pressure barrier. Added new paragraph 4.k to describe the preferred method of isolation when using shaft seal inflatable boots as a pressure boundary.
49. Appendix G Paragraph 4.l. – Added paragraph 4.l to address valve orientation verification steps and corrective actions required for an improperly oriented valve.
50. Appendix G Table 1 – Added temporary seawater systems that have an unlimited water supply that cannot be secured by a pump with a siphon break or have two valves capable of securing flow to prevent flooding of a space or drydock to the list of systems that require double barrier protection.
51. Appendix G Paragraph 8 – Added clarification for when a barrier is and is not required between an atmospheric pressure system and a worksite.

NAVSEA TECHNICAL MANUAL CERTIFICATION SHEET

Page 5 of 6

52. Added Appendix G Paragraph 8.a, 8.b, and 8.c – Added the necessary level of guidance for establishing and maintaining atmospheric pressure systems and clarifies where barriers are and are not required.
53. Appendix G Paragraph 9 – Added clarification for when danger tagging valves for protection from sea is not required in a dewatered drydock.
54. Appendix H Paragraph 1 – Added clarification of when a special MOA for work on non-nuclear components that require tagging nuclear components would be required.
55. Appendix H Paragraph 2.a, 2.a(1) – Added allowance for the RA Representative to be a non-nuclear tag-out qualified individual that tags nuclear components when allowed by MOA.
56. Appendix I Paragraph 3.a - Added amplifying guidance for when additional information to be used on the Component ID.
57. Appendix I Paragraph 3.e – Added to discuss tagging requirements for breakers with spring charged operating mechanisms.
58. Appendix J – Moved the second paragraph of 1.1 to now reformatted paragraph 3.a. Added paragraphs 2.6, 2.7, 3.5, (reformatted as paragraphs 2.e, 2.f and 3.e) to provide additional clarification to the use of Master Tag-outs that are linked to other Master Tag-outs to safely isolate work areas.
59. Appendix L (Planned Maintenance System Tag-out Procedure) is no longer applicable and has been removed. Appendix M (Out of Calibration/Out of Commission Labels) has been re-labeled as Appendix L.

NAVSEA TECHNICAL MANUAL CERTIFICATION SHEET

Page 6 of 6

(This Page Intentionally Left Blank)

S0400-AD-URM-010/TUM Rev level: 08

TAG-OUT USERS MANUAL

LIST OF EFFECTIVE PAGES

Page Numbers	Change in Effect
i thru vi	Rev 08
1 thru 25	Rev 08
A-1 thru A-2	Rev 08
B-1 thru B-4	Rev 08
C-1 thru C-2	Rev 08
D-1 thru D-14	Rev 08
E-1 thru E-2	Rev 08
F-1 thru F-6	Rev 08
G-1 thru G-6	Rev 08
H-1 thru H-2	Rev 08
I-1 thru I-4	Rev 08
J-1 thru J-4	Rev 08
K-1 thru K-16	Rev 08
L-1 thru L-2	Rev 08

S0400-AD-URM-010/TUM Rev level: 08

TAG-OUT USERS
MANUAL RECORD OF
CHANGES

CHANGE NO.	DATE	TITLE OR BRIEF DESCRIPTION	ENTERED BY (INITIALS)

S0400-AD-URM-010/TUM Rev level: 08

TAG-OUT USERS
MANUAL TABLE OF
CONTENTS

	Page No.
LIST OF EFFECTIVE PAGES	i
RECORD OF CHANGES	ii
REFERENCES.....	1
1.1 Purpose.....	1
1.1.1 Administrative Considerations	1
1.2 Applicability.....	2
1.3 Responsibilities	2
1.3.1 Ship's Force	2
1.3.2 Authorizing Officer	3
1.3.3 Repair Activity	4
1.4 Training and Qualifications.....	5
1.5 Planning Tag-outs	5
1.5.1 Tag-out Logs and Records	5
1.5.2 Use of Line Items and Tags.....	7
1.6 Establishing Tag-outs.....	8
1.6.1 Creating a Line Item.....	8
1.6.2 Independent Reviews	10
1.6.3 Authorization.....	11
1.6.4 Posting (Attachment).....	12
1.6.5 Check of Posted Tags.....	14
1.6.6 Beginning Work.....	16
1.6.7 Iterative Tag-Outs	16
1.6.8 Certified Line Items	17
1.7 Maintaining Tag-outs	18
1.7.1 Tag-out Discrepancy and Conflict.....	18
1.7.2 Missing or Damaged Tags	18
1.7.3 Work on Tagged Components.....	19
1.7.4 Audits by Ship's Force.....	21
1.7.5 Danger Tagged Components Found Out of Position or Wrong Component Tagged	21
1.7.6 Monitoring by Shipyards/Regional Maintenance Centers (RMC).....	22
1.8 Clearing Tag-outs.....	22
1.8.1 General.....	22
1.8.2 Completion of Operation/Work Items	22
1.8.3 Position/Condition.....	22
1.8.4 Authorization.....	23
1.8.5 Removal	23
1.8.6 Completion of Tag Removal	23

S0400-AD-URM-010/TUM Rev level: 08

1.8.7	Completion of Line Item Record Sheet and Tags to be Removed Sheet.....	24
1.9	Validating the Electronic Tag-out Program Database	24
1.9.1	General.....	24

S0400-AD-URM-010/TUM Rev level: 08

Appendices

A	List of Acronyms	A-1
B	Glossary of Terms	B-1
C	Repair Activity Tag-outs	C-1
D	Tag-out and Calibration	D-1
E	Tag-out Process Amplifications for Divers	E-1
F	Tag-out Standards	F-1
G	Barrier Criteria	G-1
H	Tag-out Process Amplifications for the Manual for the Control of Testing and Plant Conditions	H-1
I	Electronic Tag-out Program Administration	I-1
J	Master Tag-outs (Electronic Tag-out)	J-1
K	Manual Tag-out System	K-1
L	Out of Calibration/Out of Commission Labels	L-1

NAVSEA/SPAWAR TECHNICAL MANUAL DEFICIENCY/EVALUATION REPORT (TMDER)

S0400-AD-URM-010/TUM Rev level: 08

(This Page Intentionally Left Blank)

S0400-AD-URM-010/TUM Rev level: 08

TAG-OUT USERS MANUAL

REFERENCES

- (a) Code of Federal Regulations, 29 CFR 1915 Subpart F, Section 1915.89; Control of Hazardous Energy (Lock-out/Tags-Plus)
- (b) OPNAVINST 3120.32 - Standard Organization and Regulations of the U.S. Navy, Section 630.17, Equipment Tag-Out Bill
- (c) NAVSEA S9002-AK-CCM-010/6010 - Industrial Ship Safety Manual for Submarines
- (d) NAVSEA 0989-028-5000 - Manual for the Control of Testing and Plant Conditions
- (e) OPNAVINST 5100.19 - Navy Occupational Safety and Health (NAVOSH) Program Manual for Forces Afloat
- (f) NAVSEA S9213-41-MAN-000/(R) - Engineering Department Manual for Naval Nuclear Propulsion Plants
- (g) NAVSEA 0989-150-0000 - Standard Navy Nuclear Valves
- (h) NAVSEA S9086-KC-STM-010 - Naval Ships' Technical Manual, Chapter 300, Electric Plant General
- (i) COMFLTFORCOMINST 4790.3 - Joint Fleet Maintenance Manual
- (j) NAVSEA SS521-AG-PRO-010/0910-LP-708-8000 - U.S. Navy Diving Manual
- (k) NAVSEA 0348-159-1000 - Freeze Sealing Manual
- (l) MIL-STD-1625 - Safety Certification Program for Drydocking Facilities and Shipbuilding Ways for U.S. Navy Ships
- (m) NAVSEA 0989-018-1000 - Manual for the Control of Refueling

1.1 PURPOSE. The purpose of this manual is to:

- a. Provide for personnel and ship safety and prevent damage to equipment.
- b. Prevent improper operation when a component, equipment, system or portion of a system is isolated or in an abnormal condition.
- c. Prevent improper operation when a freeze seal is applied to a system or when other safety devices such as blank flanges are installed for testing, maintenance, or casualty isolation.
- d. Provide a procedure for use when an instrument is unreliable or not in its normal operating condition.
- e. Provide standard tag-out procedures.
- f. Provide a procedure for control of hazardous energy.

1.1.1 Administrative Considerations

- a. Appendix A contains the listing of acronyms used throughout this manual. Acronyms will be defined at their first appearance in the manual. Appendix B contains the glossary of terms used throughout this manual.
- b. Formal change requests to this manual may be submitted using the Technical Manual Deficiency/ Evaluation Report (TMDER) attached to the end of this manual. Change requests submitted either by mail, facsimile or E-mail must contain all of the information required on the TMDER and sufficient justification should be provided to support the change request.
- c. This manual is written for execution of tag-out using an electronic tag-out program. Appendix K provides guidance for using manual tag-outs in situations where the electronic tag-out program is not used.

S0400-AD-URM-010/TUM Rev level: 08

1.2 APPLICABILITY

- a. The requirements of this manual apply to equipment tag-outs and instrument labels on all systems and components on naval ships and craft when manned by Ship's Force. Appendix F, paragraph 4.g, provides specific requirements to be followed when performing simple electrical troubleshooting and maintenance without a tag-out.
- b. For "smart" ships and submarines, electrical and mechanical isolation shall be accomplished in accordance with Appendix F. Procedures for placing components out of service in the "smart" system and restoring components to service are not considered to be an integral part of the tag-out process, but are required for computer alignment and visual indication. Appendix F requires that an "air gap" be used in the tag-out of "smart" components. When isolating a smart ship component/system ensure the component/system is isolated such that, the computer/touch screen no longer has an effect on that component/system. Ship specific procedures for securing, placing out of service/Out-of-Commission (OOC), tagging, and restoring "smart" components are contained in the ship's operating procedures (submarines) or Engineering Department Organization and Regulations Manual (surface ships).
- c. The requirements of this manual are intended for use with systems that are under the operational control of Ship's Force. For reactor plant system tag-outs by Repair Activities (RA), see Appendix C. For non-reactor plant systems and equipment prior to system turnover during new construction, hazardous energy control shall be per reference (a).
 - (1) Military Diving Commands shall utilize this manual when performing diving equipment maintenance. Applicable requirements of reference (a) shall also be met.
 - (2) Craft. At the Commanding Officer's (CO's) discretion, commands may choose to utilize a locally developed hazardous energy control program compliant with reference (a). This program may be in lieu of the requirements of this manual when performing maintenance on craft (e.g. barges, floating cranes, lighters, and small boats) where there are no Ship's Force or insufficient Ship's Force assigned to hang tags in accordance with this manual. When utilizing the requirements of this manual aboard craft for which there is not assigned Ship's Force personnel, commands shall ensure the additional regulatory requirements of reference (a) are met.
- d. This manual meets the requirements of and is based on references (b), (c), (d), and (e).
- e. This manual was developed with Fleet and RA inputs and contains technical requirements from OPNAV, NAVSEASYSOCOM and Fleet documents, for ship operations and maintenance. Fleet concurrence will be obtained for any subsequent changes to this manual.
- f. In case of conflicts with other manuals, address the conflict to NAVSEA, via appropriate chain of command, for resolution.
- g. When specific valve position verification procedures are provided in the applicable reactor plant manual, steam and electric plant manual, propulsion plant manual, or valve technical manual, those procedures take precedence over the general valve position verification procedures specified in this manual.

1.3 RESPONSIBILITIES

1.3.1 Ship's Force

- a. The Commanding Officer/Officer in Charge is responsible for the safety of the entire command, and is required to ensure that all persons concerned know applicable safety precautions and procedures and to ensure compliance with this manual. Ship's Force

S0400-AD-URM-010/TUM Rev level: 08

Department Heads are responsible for ensuring that personnel assigned to their respective areas understand and comply with this manual.

- b. The Authorizing Officer (AO) shall supervise the tag-out log and will assist in obtaining Commanding Officer authorization of tag-outs when needed.
- c. Supervisory watchstanders shall review associated tag-out logs during watch relief and shift turnover.
- d. Ship's Force is responsible for ensuring the adequacy and accuracy of all tag-outs, including those proposed by the RA. They shall also verify that tags, which are no longer needed, are removed as soon as possible after the operation/work line item(s) has been cleared. Ship's Force is responsible for system restoration (e.g., valve/switch lineups) after tags are cleared.

1.3.2 Authorizing Officer. Each tag-out log is administered by an Authorizing Officer. The Authorizing Officer:

- a. Is responsible for the administration of their cognizant tag-out log.
- b. Is Ship's Force except for RA tag-outs per Appendix C.
- c. Is designated by the Department Head by billet or watchstation (for non-propulsion plant).
- d. Is the Watch/Duty Officer for the propulsion plant tag-out log(s).
- e. For submarines underway on the surface, the Officer of the Deck (OOD) may designate the officer or Petty Officer in Charge (POIC) of the control room as the Authorizing Officer. During this time no tag will be issued or cleared without the verbal concurrence of the OOD. The officer or POIC of the control room, when designated the Authorizing Officer, will ensure compliance with the provisions of this manual. In this case, the OOD, upon relief, will review the line item(s) initiated or cleared during his watch. Any discrepancies shall be immediately resolved.
- f. The Ship's Commanding Officer may authorize, in writing, a qualified watch officer, designated as the Assistant Authorizing Officer (AAO), to be responsible for confirming the adequacy and accuracy of a line item. Two examples of when assignment of an Assistant Authorizing Officer might be beneficial are during periods of heavy maintenance, to unburden the on-watch duty officer, and when the cognizant division officer is acting in this capacity to review tag-outs for work on systems under his/her cognizance.
 - (1) These individuals shall be designated for only those tag-out logs they are qualified to supervise.
 - (2) The Assistant Authorizing Officer shall sign in the Accuracy/Adequacy Check block for the line item signifying the adequacy and accuracy of the tag-out.
 - (3) The Authorizing Officer shall sign the Authorizing Officer Issued block of the line item signifying agreement that any associated system status changes and installation of tags are compatible with ship and plant conditions.
 - (4) The Assistant Authorizing Officer may also sign as Authorizing Officer on the tags after the Authorizing Officer has authorized the line item. The Authorizing Officer must be informed prior to changes to system status.
 - (5) The Assistant Authorizing Officer can process line items to authorize work using previously hung tags and can sign as Authorizing Officer on the line item. Similarly, the Assistant Authorizing Officer can sign the Work Center Supervisor (WCS) or POIC (Work Complete) block to clear line items within a tag-out (for Completed work) that would not result in the clearing of any tags.

S0400-AD-URM-010/TUM Rev level: 08

1.3.3 Repair Activity

- a. The RA is responsible for:
 - (1) Ensuring personnel understand and comply with this manual including their sub-contractors.
 - (2) Reviewing tag-outs associated with RA work.
 - (3) Ensuring the accuracy and adequacy of tag-outs before signing the **Repair Activity Rep** block of the line item. This review shall ensure that enough tags are used to completely isolate the system, piping, or circuit being worked on or to prevent operation of a system or component from all stations that could exercise control. Approved system diagrams or circuit schematics shall be used to determine the adequacy of all tag-out actions. When local instructions allow, the documented verification signature made by a qualified repair activity individual proposing the tag-out may be used as the repair activity's validation of the adequacy and accuracy of a tag-out. This allowance only applies when the proposed tag-out and the authorized tag-out are identical. The RA Representative authorizing the line item remains responsible for ensuring the tag-out is compatible with system status and ship/plant conditions.
 - (4) Ensuring tags that are no longer needed, are authorized for removal as soon as possible after the operation/work line item has been signed as completed.
 - (5) Ensuring qualified personnel act as the RA Representative for tag-out procedures.
- b. The RA:
 - (1) Acts as the Authorizing Officer for RA tag-outs (see Appendix C).
 - (2) Signs line items associated with RA work.
 - (3) Witnesses or verifies checking of posted tags, signs tags and initials in the **Repair Activity Witness** block on the Tags to be Hung Sheet (THS) or Line Item Record Sheet (LIRS), if the LIRS is being used to capture RA Witness initials.
- c. Exceptions:
 - (1) Contractors who are not qualified in accordance with paragraph 1.4.2 of this manual shall perform their duties as RA in the following manner:
 - (a) Signature in the **Repair Activity Rep** block of the line item is based on a direct report or briefing they receive from Ship's Force. The contractor's signature represents confirmation by the contractor that based on this briefing, the contractor understands the hazards presented by the ship's systems on which the contractor will be working, including receiving assurance that appropriate isolations have been performed.
 - (b) Signature in the **Repair Activity Witness** block of the Danger Tag and corresponding initials in the **Repair Activity Witness** block of the THS/LIRS, are based on the contractor having been shown the installed tag and the means to ensure the component is in the position/condition specified on the tag, and the **Tagged Position/Condition** block of the THS per paragraph 1.6.5.a of this manual.
 - (c) Signature in the **Repair Activity Witness** block of the Caution Tag and corresponding initials in the **Repair Activity Witness** block of the THS/LIRS are based upon the contractor being shown the installed tag and the amplifying instructions on the tag.
 - (d) Signature and date in the **Repair Activity Rep (Work Complete)** block of the line item is based upon the contractor's knowledge that the work item/operation is complete.

S0400-AD-URM-010/TUM Rev level: 08

- (e) When requested by the Authorizing Officer, the contractor signs the Clearance Authorized – Repair Activity block of the Tags to be Removed Sheet (TRS) to indicate that the contractor portion of the work/operation is complete and the tags are no longer needed for the contractor's work.
- (f) As an alternative, the contractor may specifically agree via their contract or Memorandum of Agreement (MOA) that all RA responsibilities as defined in this manual are assigned to the lead RA. In all cases, appropriate information shall be provided to the contractor prior to initiating work to ensure that the contractor understands the hazards involved and does not remove existing tags or take any action that changes the position of tagged components.

(2) Naval activities who are required to follow this tag-out manual, such as ships, Naval Intermediate-Level fleet maintenance activities (e.g., Fleet Maintenance Activities (FMA)) and naval shipyards, will normally not be permitted to assign their tag-out review and signature responsibilities to another activity since Naval activities have sufficient knowledge to perform a proper review. The only exception is if a shipyard or FMA is performing work where another shipyard is the lead RA. In this case, the MOA between these activities may assign the lead shipyard the tag-out responsibilities. However, provisions should be included for the lead shipyard to work with the shipyard or FMA performing the work to ensure the tag-out adequacy and accuracy.

1.4 TRAINING AND QUALIFICATIONS.

- 1.4.1 All individuals who perform work aboard Naval Vessels shall be indoctrinated in basic purpose, use and restrictions associated with this manual. Additionally, personnel indoctrination and training shall include that the RA employee will be provided the opportunity to review isolations and system conditions established for their work.
- 1.4.2 Personnel assigned to prepare tag-outs, review tag-outs, position equipment, post (attach) tags, check posted tags, clear (remove) tags, or perform tag audits, shall be qualified on this tag-out manual. Formal notices which list qualified personnel by name are not required by this manual. The Authorizing Officer is responsible for ensuring that Ship's Force personnel assigned to make a tag-out are qualified to perform the duties under this manual.
 - a. Tag-out User's Manual training topics shall be included in the Ship's, and RA, continuing training program.
 - b. The term qualified as used in this Tag-out User's Manual means that the person assigned to perform a tag-out function is knowledgeable about the requirements of this manual and is knowledgeable about the involved system/equipment.
 - c. Ship's Force qualification in this Tag-out User's Manual should be done by the completion of 3M 301 Personnel Qualification Standard, and if required, completion of departmental qualifications.
 - d. RA personnel are qualified in this Tag-out User's Manual by successful completion of the activity's training program. A formal system should be in place at the RA for performing and tracking qualifications of personnel on this manual.

1.5 PLANNING TAG-OUTS.

1.5.1 Tag-out Logs and Records

- a. The number of tag-out logs maintained by a ship will depend on ship size and needs. Individual Type Commanders shall specify the number of logs maintained for various ship classes, and where the logs will be maintained.

S0400-AD-URM-010/TUM Rev level: 08

- b. The number of tag-outs shall be kept to a minimum. Most line items can be prepared under a single tag-out (this includes both nuclear and non-nuclear work items). For the ease of administering tag-outs in multi-plant ships, a separate tag-out may be prepared for each plant or department.
- c. On nuclear-powered ships, a separate tag-out log for each propulsion plant shall be maintained in addition to other ship's tag-out logs. This log:
 - (1) Is administered by the Watch/Duty Officer.
 - (2) Is used for propulsion plant systems and equipment, and for other systems and equipment in the engineering spaces under the cognizance of propulsion plant divisions.
 - (3) Is maintained in the Maneuvering Area, or Enclosed Operating Station, as applicable.
- d. The electronic tag-out program maintains an index of line items.
- e. The binder for storing records produced from the electronic tag-out program shall be maintained in the vicinity of the computer terminal used by the Authorizing Officer. The binder shall be marked appropriately. The binder shall be maintained in the following format:

Part 1 - A copy of the Tag-out User's Manual.

Part 2 - Active LIRS (if not utilizing electronic signatures). Include draft LIRS if documenting CO's concurrence per paragraph 1.6.2.c or documenting additional RA Witness for shared tags.

Part 3 - Active Tags to be Hung Sheets.

Part 4 - Cleared LIRS (if not utilizing electronic signatures)/Cleared Tags to be Hung Sheets/Completed Tags to be Removed Sheets.

Part 5 - Instrument Log sheet(s) (see Appendix D, Figure 9)

Part 6 - Record of audits.

- f. Tag-out serial numbers shall normally consist of a department/division designator (multi-plant ships may include a numeric designation for each tag-out within a department) followed by a "hyphen" and then a sequential number (e.g., ENG-DANGER-0001). To differentiate between tag-out logs, a prefix system approved by the Commanding Officer shall be used with the log serial number. For example, on nuclear submarines, in order to differentiate between ship's tags and propulsion plant tags, ship's tags shall be prefixed S and propulsion plant tags P. Another example of tag-out prefixes is P1 for a propulsion plant tag-out in the first plant of a multi-plant ship.
- g. Hanging line items that have been modified due to changing work boundaries or other administrative reasons shall have the same serial number as the original line item followed by a series/repeat number in parentheses beginning with "(1)". This will indicate to users that a revision has been made to existing line items. An example of this would be EE01-1234[PMS](1) or if a description and/or date are used, EE01-1234[PMS] Megger Check #2 R-114 Motor 02 Jan 02(1). Other variations such as alphabetic (i.e., a, b, c, etc.) will only be recognized by the "eTAG-OUT" tag-out program but will not be recognized by "ESOMS" tag-out program. Numbers shall be used to provide consistency between Fleet/RA and be placed at the end of the line item nomenclature.
- h. The line item index shall be used as the official index record. There is no need to maintain a paper index in the tag-out log binder. For auditing purposes, the line item index may be printed to allow for remote auditing, but this index need not be maintained with the log binder.

S0400-AD-URM-010/TUM Rev level: 08

- i. Figures of Appendix D and Appendix K are illustrations of NAVSEA forms and/or formats. Appendix D, Figures 10 and 11 provide a template for standardization of an audit record sheet. Forms produced by NAVSEA 04X approved automated tag-out systems are acceptable substitutes for all forms (except tags) required by this manual. Tags should normally be limited to the standard tags in Appendix D and Appendix K. Minor changes made by NAVSEA 04XQ (e.g., change in material used or layout) to the tags depicted in Appendix D and K are acceptable as long as there is no change in content.

1.5.2 Use of Line Items and Tags

- a. Use line items:
 - (1) For work or casualty isolation.
 - (2) For indicating the presence of safety devices required for safety of personnel or equipment not consistent with normal operations, except as excluded in Appendix F, paragraph 3(f).
 - (3) For controlling status of equipment or components placed Out-of-Commission /Service.
 - (4) To indicate the presence of electrical jumpers unless specifically controlled by other formal methods such as troubleshooting records, wire removal forms, or written procedures.
 - (5) When required by operating procedures.
- b. When line items are used:
 - (1) Use enough tags to prevent injury to personnel and damage to equipment by completely isolating the work area.
 - (2) The use of tags is not a substitute for other safety measures such as chaining or locking valves, removing fuses, or racking out circuit breakers. However, tags shall be attached to the fuse panel, racked out circuit breaker cabinet, or locked valve to indicate such action.
 - (3) Minimize the number of tags used through careful work planning in an effort to maintain better control of the tag-out process.
 - (4) A work item Work Authorization Form (WAF) may be supported by more than one line item when different parties are cognizant of the items being tagged.
 - (a) When only one electronic tag-out database is being used, multiple line items may be used on a single WAF (e.g., tags in plant #1 may be needed to isolate work in plant #2 or when both nuclear and non-nuclear components are tagged for work using separate line items). These line items are both represented, and visible, to each other in the database and database reports will see all the components in both line items.
 - (b) Ships that have more than one electronic tag-out databases, (e.g. CVNs have one for Propulsion Plant and a separate one for non-propulsion plant) may require isolation of components from both databases, and therefore multiple line items, for a single WAF. Since the components of these line items are not represented, or visible, in both databases, careful consideration and coordination is required to ensure all line items remain in a hanging status until Block 16 on the WAF (Work Complete) is signed. The WAF is the only document linking the multiple line items since there is no visibility between the electronic databases.
- c. Use danger tags to prohibit the operation or removal of equipment that could jeopardize safety of personnel or endanger equipment, systems or components.

S0400-AD-URM-010/TUM Rev level: 08

- d. Use caution tags to provide temporary special instruction(s) or to indicate that unusual actions must be exercised to operate equipment. Caution tags must state the specific reason the tags are installed. Use of a phrase such as "DO NOT OPERATE WITHOUT EOOW PERMISSION" is not appropriate since equipment or systems are normally not operated unless permission from the responsible supervisor has been obtained. A caution tag is not used if personnel or equipment can be endangered while performing evolutions using normal operating procedures. A danger tag is used in this case.
- e. Any person having knowledge of a situation requiring tags or labels should request that they be issued and applied.
- f. Tags should:
 - (1) Be removed as soon as possible after all line item(s) listing a component are cleared. Only tags not shared with other line items and listed on the Tags to be Removed Sheet (TRS), may be removed.
 - (2) Never be used for component identification, or to mark leaks.
 - (3) Not be reused.
- g. Tags of color, size, and shape similar to danger or caution tags will not be used for any other purpose onboard ships or craft.

1.6 **ESTABLISHING TAG-OUTS.**

- a. Use enough tags to completely isolate the system, piping, or circuit, being worked on and to prevent operation of a system or component from all stations that could exercise control. As a minimum, system diagrams or circuit schematics shall be used, by preparers and reviewers, to determine the adequacy of all tag-out actions. The system/component identification (for example, 1MS-V1, HYDRAULIC PUMP BKR @ 1S-4P-F(1)) and position/condition (for example, OPEN, SHUT, BLANK FLANGE INSTALLED) of the tagged item should be indicated by the most easily identifiable means. As a minimum, the System Component ID/*Location block of the Tags to be Hung Sheet (THS) and System/Component ID block on the tag must include the actual label-plate component identifier (e.g., valve number or circuit designation). If slight differences between the identifiers are noted, (e.g., 64-4P-K(1) LO PMP #3 on the tag when label-plate identifier reads 64-4P K(1) L.O. PUMP No. 3, etc.) it is not necessary to re-create and hang a new tag provided that there is no doubt that the correct component has been tagged. If doubt exists due to an incorrect or inadequate unique component identifier (e.g. Sample Cooler Chill Water Supply), contact the Authorizing Officer for resolution. Appendix I provides the administrative procedures for naming components when creating, updating and maintaining the electronic tag-out program. Appendix F paragraph 5.b provides direction for temporary component ID tags until a permanent label plate is installed. Never hang a danger tag on a component without a proper label as described above.

NOTE: APPENDICES F AND G SHALL ALSO BE CONSIDERED IN DETERMINING THE ADEQUACY OF THE TAG-OUT.

- b. Line items prepared for diver's operations shall follow the guidance of Appendix E.

1.6.1 **Creating a Line Item.** Evaluate if the danger tagged component is located in a high traffic area. If yes, take action per Appendix F, paragraph 3.b(2). Any qualified Ship's Force person may prepare line items. Normally the preparer is the Ship's Force POIC of the operation/work item. During shipyard Chief of Naval Operations (CNO) availabilities, the shipyard will normally propose the tag-out to Ship's Force (but not necessarily prepare the line items) for shipyard work. The following provides requirements for creating and updating line items. Existing databases that use a consistent line item numbering convention are not required to be changed to meet these requirements. If the

S0400-AD-URM-010/TUM Rev level: 08

Repair Activity is preparing the line item for proposed RA work within the electronic tag-out program, ensure all appropriate information is entered and all repair activity blocks are electronically signed as follows:

- a. **Line Item Numbering.** The following numbering convention shall be used: Enter the work center, followed by square bracket ([), basic reason for tag-out, closed square bracket (]), description of maintenance, and today's date (description and date optional. The date is automatically added in eTAGOUT), followed by (revision number). An example of this would be EE01[PMS] Megger Check #2 R-114 Motor 02 Jan 02(1). Once assigned, the line item number cannot be changed. Do not use apostrophes, quotes, colons or semi-colons in line item numbers as these are used by the electronic tag-out program as operators.

NOTE: If using the ESOMS Tag-out Program, the equipment that is entered into the **Component to be Worked** field has any Danger or Caution tags currently hanging or issued to be hung, a warning will appear. This is for information and will not prevent issuing the line item.

- b. **Hazards/Amplifying Instructions.** Any information entered in this field will print on the "PERSONNEL/EQUIPMENT HAZARDS INVOLVED" block on Line Item Sheets for Danger tag-outs, OR on the "AMPLIFYING INSTRUCTIONS" block for Caution tag-outs.

NOTE: If using the ESOMS Tag-out Program, and it is necessary to hang more than one caution tag on the same component, a separate Caution tag-out folder must be created by the electronic tag-out program administrator. This additional tag-out folder is created for the purpose of hanging additional caution tags with different Hazards/Amplifying Instructions and is usually temporary.

- c. If using the ESOMS Tag-out Program, the **Applicable Documentation** field is limited to 31 characters or less. If there is insufficient space, use the **Reason** field to enter additional required information and enter statement "see Reason block".
- d. If using the ESOMS Tag-out Program, and a component added to the tag list is currently the **Component to be Worked** for another line item, a warning will occur. This is for information and will not prevent issuing the line item.
- e. Perform a **Conflict Check** if a conflict is indicated with an issued tag. Perform a **Conflict Check Un-Issued** to determine if there are any conflicts between the line item being developed and other line items being prepared. Conflicts with issued line items must be resolved before the Authorizing Officer issues the line item. In the case of a conflict with another un-issued line item, coordinate with the division responsible for the conflicting line item to resolve conflicts.
 - (1) **Transitioning Tagged Condition for Components.** Maintenance requiring a component to be tagged in a different condition than the condition that it is already tagged will produce a tag conflict preventing issuing the new line item. This situation is managed in one of the following manners:
 - (a) The new maintenance requiring a more restrictive condition may be delayed until all line items requiring the component to be tagged in a less restrictive condition are cleared.
 - (b) The new tagged condition is less restrictive than the existing tagged condition (e.g., MS-1 is currently tagged "locked shut", and for the new maintenance action is just required to be tagged "shut"). The new line item may use the more restrictive tagged position.
 - (c) The new tagged condition is more restrictive than the existing tagged condition (e.g., MS-1 is currently just tagged "shut", and for the new maintenance action is required to be tagged "locked shut"). The process for transitioning a Component with a Tag

S0400-AD-URM-010/TUM Rev level: 08

hanging from an Unlocked to a Locked Condition is as follows:

1. Prepare a line item for the new maintenance action per Paragraph 1.6.1.
2. Add the affected component to the line item tag list. Select the current tagged position (e.g., "shut") for the affected component.
3. Add a new component to the database. The component name shall be the same as the original component plus locking device (e.g., MS-1 LOCKING DEVICE).
4. Add the new component to the line item. Select the new more restrictive condition-position (e.g., "Installed") for this component.

NOTE: The affected component will have TWO tags when the new maintenance action item is issued, the original tag, and the new tag on the Locking Device.

- f. If the line item is not associated with any RA work, RA review of tags and line item is not required. The Repair Activity Rep blocks of the line item and the Repair Activity Witness block of the THS and tags shall be left blank.
- g. After the line item is filled out, the Petty Officer In-Charge block is signed. The signer, normally the Ship's Force POIC of the work, shall ensure the adequacy and accuracy of the line item. The signer shall request another qualified person perform an independent review.
- h. Cross Check. When a line item created by one department/division affects another department/division equipment, a cross check shall be used. (For ESOMS selection of this feature in the line item attributes activates two additional verification signatures on the Line Item Verification tab). These Cross Check signatures are signed by the second division/department signifying concurrence with the proposed tag-out. These additional signatures must be entered prior to the Authorizing Officer issuing the line item.

1.6.2 Independent Reviews. In addition to the Second Person verification, which is always mandatory, independent reviews may be required by cross checkers and/or the Assistant Authorizing Officer. The following steps apply to all independent reviewers:

- a. A second qualified person shall independently determine the adequacy and accuracy of the line item and isolation. To check an active line item, open the line item to be verified and review all of the information in the Line Item Details tab (Line Item Detail in ESOMS), the Line Item Attributes tab (ESOMS only), and the Line Item Tags tab. This individual shall ensure that enough tags are used to completely isolate the system, piping, or circuit being worked on or to prevent operation of a system or component from all stations that could exercise control. System diagrams or circuit schematics shall be used to determine the adequacy of all tag-out actions.
- b. To concur with the line item as written, select the line that is to be signed. Electronically sign on for verification, and notify the next person in the verification chain. To reject the line item as written, note who prepared the line item, select "Back to Draft" (eTAG-OUT), or select the last line that has been signed for in the "User" column, and electronically sign off the line item (ESOMS). Notify the preparer that the line item has been rejected and give the specific reason for doing so. For RA proposed line items, during a CNO Availability, discuss the reason for rejecting a line item with the preparer prior to selecting "Back to Draft" (eTAG-OUT), or electronically signing off the line item (ESOMS).
- c. The Commanding Officer may sign concurrence electronically when required (or a user with the CO permissions and authorization could perform this signature). If using ESOMS, and the CO's electronic signature function is not available, print the LIRS to obtain the Commanding

S0400-AD-URM-010/TUM Rev level: 08

Officer's concurrence.

- d. When the independent review is complete and the reviewer is satisfied with the adequacy and accuracy of the tag-out plan, that reviewer shall sign the applicable block (first **Cross Check**, **Second Person**, second **Cross Check** or **Accuracy/Adequacy Check** block) indicating concurrence. The line item shall then be presented to the Authorizing Officer.

1.6.3 Authorization

- a. When authorizing tags to be posted, the Authorizing Officer shall:
 - (1) Review the **Line Item Details** tab. (Line Item Detail tab in ESOMS)
 - (2) Review the **Line Item Attribute** tab (ESOMS only).
 - (3) Review the **Line Item Tags** tab for adequacy of tag-out coverage.
 - (4) If manned, notify Damage Control (DC) Central of line items affecting DC capabilities.
- b. When required, the Ship's Force Authorizing Officer shall obtain review by the RA.
 - (1) RA review is required for line items associated with RA work.
 - (2) The RA Representative shall independently review the tag coverage for adequacy, and review the line item for completeness and accuracy. When local instructions allow, the documented verification signature made by a qualified repair activity individual proposing the tag-out may be used as the repair activity's validation of the adequacy and accuracy of a tag-out. This allowance only applies when the proposed tag-out and the authorized tag-out are identical. The RA Representative authorizing the line item remains responsible for ensuring the tag-out is compatible with system status and ship/plant conditions. When satisfied with the tag-out plan, the RA Representative shall sign the **Repair Activity Rep** block on the line item.
 - (3) On a case basis, it is allowable for Ship's Force to prepare/review a safety line item and post the tags for upcoming RA work, unless the maintenance involves safety of ship work when reference (c) is invoked or when restricted by Appendix H or by an MOA. However, in all cases, the RA must review the line item and sign the **Repair Activity Rep** block of the line item. The RA must verify/witness component position/condition and tag attachment, including signing the **Repair Activity Witness** block of the tags and initialing the **Repair Activity Witness** block of the THS/LIRS (as applicable), prior to authorization of RA work.
- c. When more than one tag-out log is maintained, an exchange of information concerning tag-out actions is required between Authorizing Officers. When tag-out actions affect another Authorizing Officer, the initiating Authorizing Officer will obtain verbal concurrence from each affected Authorizing Officer before taking tag-out action. Examples of systems that may require such coordination are:
 - (1) Ship's service and high pressure air systems.
 - (2) Fire main systems that supply cooling or backup cooling.
 - (3) Systems supporting the Reactor Plant.
 - (4) Reactor or propulsion plant systems that contain cross-connect lines between plants.
 - (5) Electronic Cooling loops.
 - (6) Monitoring and interior communications equipment.
- d. To issue an active line item, open the line item to be issued and review all of the information in

S0400-AD-URM-010/TUM Rev level: 08

the Line Item Details (Line Item Detail in ESOMS) tab, the Line Item Attributes tab (ESOMS only), and the Line Item Tags tab. When review is completed, select the Line Item Verification tab (ESOMS only). Verify that all requirements for first and second checking for line item initiators (and cross checkers, if applicable) have been completed. Verify that the Assistant Authorizing Officer and Repair Activity Representative have signed on, if required. Either concur with the line item as written or reject the tag-out back to the original writer as described in paragraph 1.6.2.b. When the check is complete (and RA review when required), the Authorizing Officer shall:

- (1) Sign the Authorizing Officer (Issued) block of the line item. Print the LIRS (optional unless required to document other non-electronic signatures such as Commanding Officer permissions or RA Witness initials for shared tags), THS, and tag labels. For Caution tags, also print the caution statement labels.

NOTE: Shared tags already issued will not be shown on the THS and labels will not be printed.

- (2) Sign the Authorizing Officer block of the tag(s) (see section 1.3.2).
- (3) Notify affected watchstanders of the tag-out authorization.
- (4) Assign a person to post the tag(s).

1.6.4 Posting (Attachment)

- a. The person assigned to post tags shall ensure:

- (1) The correct component is tagged. If component identification is missing, or has an incorrect or insufficient unique component identifier, post permanent identification, or post temporary identification per Appendix F, paragraph 5.b, to support completion of the tag-out. Appendix I provides the administrative procedures for naming components when creating, updating and maintaining the electronic tag-out program. Never hang a danger tag on a component without a proper label as described in paragraph 1.6.a
- (2) The component is as specified on the tag and the THS. For danger tags, the poster shall ensure each component is in the position/condition specified on the tag and THS.
- (3) The Authorizing Officer has given permission for repositioning components. Permission may be given at the time the line item is issued, or the Authorizing Officer may require permission be obtained just before the component is repositioned (e.g., in order to control sequencing).
- (4) For valves where no locks are involved, the poster should position or confirm the valve's position per the instructions in the valve manual, if applicable, including visual inspection of the valve position (e.g., position indicator and throw operator position) and, for manual valves other than ball valves, attempting to turn the handwheel/operator a small amount in the shut direction. For manual valves with a detent mechanism or other similar device, slightly move the valve operator (not more than 5 degrees) to verify proper engagement.
- (5) If the component to be tagged is required to be locked by the tag-out or has a previously installed lock, perform the following:
 - (a) If a locking device is already installed, it is not necessary to remove the locking device provided the poster can verify the component position via a formal valve/switch lineup that was previously accomplished on the component. The documentation shall be available to verify the component's position, by checking available position indication and, in the case of manual valves other than ball valves, where the locking device permits, by attempting to turn the handwheel/operator a small amount in the shut direction. For manual valves with a detent mechanism or other similar device, slightly

S0400-AD-URM-010/TUM Rev level: 08

move the valve operator (not more than 5 degrees) to verify proper engagement.

- (b) If a locking device is not previously installed or it is removed to check the position of/reposition the component, and a lock is required by the tag-out, the locking device should be installed after the poster verifies the position/repositions the component. For non-nuclear valves, installation of the locking device depends on the type of locking device and whether it restricts movement of the valve. If the locking device will allow sufficient valve stem movement such that the checker can verify the locked valve's position and torque (if applicable) by attempting to turn it in the shut direction, then the poster may proceed with installation and verification of the locking device. If the locking device will not allow stem movement, a formal valve lineup (or equivalent) must be performed to ensure that two operators verify and document the valve's position and torque (if applicable) prior to installing the locking device. For nuclear valves, the valve lineup procedure in reference (f) shall be followed to ensure that two operators verify the valve's position prior to installing the locking device.
- (6) Five through sixteen inch parallel disc gate valves, used in the steam and feed water systems in most propulsion plants, are closed by positioning the valve a few turns counterclockwise from the hard stop position.
 - (a) This method of positioning is known as position-seating or soft-seating the valve.
 - (b) The component technical manual, reference (g), and Reactor Plant/Steam Plant/Propulsion Plant manual will specify the specific number of turns open from the fully shut position required to soft-seat a particular valve.
 - (c) When tagging these valves, two operators shall go to position the valve. Document the valve positioning using a two-party valve line up sheet annotating number of turns required for seating the valve. One will position and soft-seat the valve and the other will witness the positioning and post the tag.
- (7) Evaluate whether the danger tagged component is located in a high traffic area. If this is the case, inform the Authorizing Officer.

NOTE: LANYARD LOCKING CLIP DEVICES ARE NOT ACCEPTABLE FOR USE AS LOCKING DEVICES FOR TAG-OUTS.

- b. If a component to be tagged has previously been danger-tagged (i.e., danger tag already hanging on the component), verification of the component's position/condition by the person posting the new tag shall consist of:
 - (1) A comparison check to confirm that the position/condition specified on the new danger tag is identical to the position/condition stated on the posted danger tag. There may be situations where a valve may have to be locked shut for one work item and only shut for a different work item. It is acceptable for both tags to be installed on the valve. A locking device installed on a valve that is tagged as shut is not a violation of this manual.
 - (2) Since the electronic tag-out program is set up to cross-reference a single tag to multiple work authorizations, the generation of a second tag in the same folder/tag series should not occur and would be an indication of a problem with the program or a nomenclature problem with the entry. If the person posting a tag finds another tag in the same folder/tag-out serial number on the component, the person should stop and notify the Authorizing Officer for further instructions. The Authorizing Officer shall perform a conflict check per paragraph 1.6.1.e.
 - (3) When a valve or switch position is specified, visually check, if possible, that the component is in its proper position.

S0400-AD-URM-010/TUM Rev level: 08

- c. The person posting the tags must post them such that they are apparent to anyone who may attempt to operate or remove the component. Tags shall be posted on breaker operators whenever possible. Tags must not be posted on fixtures adjacent to the item being tagged-out. Specific amplifications are:

- (1) All applicable electrical safety precautions/requirements shall be observed when performing tag-outs in electrical panels and/or switchgear.

CAUTION: WHEN POSTING TAGS, DO NOT RENDER SPRAY-TIGHT ENCLOSURES INEFFECTIVE.

- (2) When necessary for electrical safety, it is permissible to post tags on electrical panel covers. However, tags should be posted directly on circuit breakers and switches whenever possible.
 - (3) When the prescribed position or condition for an item is Fuse(s) Removed, dead front/removable fuse holders/carriages shall also be removed.
 - (4) When necessary to preclude damage to tags subject to wet environments, it is permissible to enclose them in clear plastic envelopes (or sleeving) that permits the tags to be observed. For those tags installed in clear envelopes, only the danger/caution tag shall be inside the envelope. This is to ensure the tag is visible from both sides of the envelope.
 - (5) To ensure that a tag posted on a manually operated valve is readily apparent to anyone who may attempt to operate or remove the valve once tagged, the tag should be posted on the valve operator, if installed, or the valve stem. If these locations are inappropriate for some reason, the tag may be attached to the valve yoke or bonnet or another readily apparent location.
 - (6) If a switch or a valve has multiple operating stations, all operating controls shall be tagged to prevent operation.
 - (7) Posting of tags for hull fittings/flanges or blanks installed outboard below the waterline shall be in accordance with Appendix G.
 - (8) Nothing shall be attached to a posted Danger tag (e.g., removed fuses or spare parts shall not be taped to the tag).

- d. After each tag is posted, the person posting the tag shall:

- (1) Sign the Person Attaching Tag block of the tag, and
 - (2) Initial the Posted By block of the THS for that tag.

- e. When posting is complete, the person posting shall present the THS/LIRS to a second qualified person who will independently check (verify) that tags were correctly posted.

1.6.5 Check of Posted Tags

- a. After tag posting is complete, a second person shall independently ensure that the correct component is tagged, and check (verify) proper component positioning and tag attachment. This checker shall not accompany the person(s) posting the tag. If the RA concurred in the tag-out, they shall verify/witness the check in accordance with paragraph 1.6.5.b (3). The checker (and witness) shall be qualified on tag-outs and shall ensure proper positioning and tag attachment as follows:
 - (1) For checking a danger tag on a component not currently tagged by another line item (i.e., another danger tag is not hanging on the component), the checker shall ensure the component is in the position/condition specified on the tag and THS. For valves which are

S0400-AD-URM-010/TUM Rev level: 08

not locked, check the valve's position per the instructions in the valve manual if applicable, including a visual inspection of the valve position (e.g., position indicator and throw operator) and, for manual valves other than ball valves, attempting to turn the handwheel/operator a small amount in the shut direction. For manual valves with a detent mechanism or other similar device, slightly move the valve operator (not more than 5 degrees) to verify proper engagement. For electrical isolations, check for switch or breaker position or fuse removal. An RA Witness shall never physically check the position/condition of a component. Evaluate whether the danger tagged component is located in a high traffic area. If this is the case, inform the Authorizing Officer.

- (2) If an item to be tagged has previously been danger tagged (i.e. danger tag already hanging on the component), verification of the component's position/condition shall consist of a comparison check to confirm that the position/condition specified on the new danger tag is identical to the position/condition stated on the posted danger tag. There may be situations where a valve may have to be "locked shut" for one work item and only "shut" for a different work item. It is acceptable for both tags to be installed on the valve. A locking device installed on a valve that is tagged as "shut" is not a violation of this manual.
 - (a) Since the electronic tag-out program is set up to cross-reference a single tag to multiple work authorizations, the generation of a second tag in the same folder/tag-out serial number should not occur and would be an indication of a problem with the program or a nomenclature problem with the entry. If the person posting a tag finds another tag in the same folder/tag-out serial number on the component, the person should stop and notify the Authorizing Officer for further instructions. The Authorizing Officer shall perform a conflict check per paragraph 1.6.1.e.
 - (b) When a valve or switch position is specified, visually check, if possible, that the component is in its proper position.
- (3) To check proper positioning on a component which is locked the checker can verify the component position via a formal valve/switch lineup that was previously accomplished on the component (when the documentation is available). Checking the installed position indicator and, in the case of manual valves, other than ball valves where the locking device permits, by attempting to turn the handwheel/operator a small amount in the shut direction. For manual valves with a detent mechanism or other similar device, where the locking device permits, slightly move the valve operator (not more than 5 degrees) to verify proper engagement.

NOTE: LANYARD LOCKING CLIP DEVICES ARE NOT ACCEPTABLE FOR USE AS LOCKING DEVICES FOR TAG-OUTS.

- (4) When checking the position of a soft-seated parallel disc gate valve, the second checker shall not be one of the two operators who positioned the valve and will rely only on the two-party valve line up, the tag and available indications to verify valve position.
- (5) Any doubt about the position of the tagged component shall be immediately brought to the attention of the Watch/Duty Officer.
- b. After checking each component:
 - (1) The checker shall sign the **Person Checking Tag** block of the tag.
 - (2) The checker shall initial the **Posting Checked By** block of the THS.
 - (3) When required, the RA Witness should normally accompany Ship's Force, witness the

S0400-AD-URM-010/TUM Rev level: 08

check of the tag installation, sign the **Repair Activity Witness** block of the tag and initial the **Repair Activity Witness** block of the THS/LIRS, as applicable, prior to commencement of the RA work. If the RA was not available to witness the checking of posted tags, or the tags were previously hung on a non-RA line item, the RA will independently visually verify the posted tag and component position/condition. The RA will sign the **Repair Activity Witness** block of the tag, and initial the **Repair Activity Witness** block of the THS/LIRS, prior to commencement of the RA work. If during this visual verification the RA cannot verify the component position, or a question arises regarding component position, the RA shall, with the assistance of Ship's Force, follow the procedures in paragraph 1.7.4.b(6)(c) for checking the position of a danger-tagged component. An RA Witness shall never physically check the position/condition of a component. Evaluate whether the danger tagged component is located in a high traffic area. If this is the case, inform the Authorizing Officer.

- (4) When an RA line item is issued that shares tags with an RA line item approved by another RA, the RA shall verify installation of the tags that apply to their work item. The RA adding work initials on the **Repair Activity Witness** block of the LIRS. Signatures on existing tag(s) are not required.
- (5) The RA is not required to sign the **Repair Activity Witness** block of the tag nor initial the **Repair Activity Witness** block of the THS/LIRS for a new line item whose tag(s) have already been witnessed by the same RA. If the new line item requires additional tags to be hung, the RA shall sign the **Repair Activity Witness** block of the new tags and initial the corresponding **Repair Activity Witness** block of the THS/LIRS, as applicable. All other requirements for the RA to verify the adequacy and accuracy of the tag coverage must be performed.
- c. After checks (and witnessing if done concurrently) are complete, the checker shall return the THS/LIRS to the Authorizing Officer. The Authorizing Officer shall verify from the THS/LIRS that all required tags are hanging, including verification that all tags used by the line item have been RA Witnessed when applicable, and sign on to the **Authorizing Officer Verified Hung** block of the line item.
- d. Checking of tags for hull fittings/flanges or blanks installed outboard shall be in accordance with Appendix G.

1.6.6 Beginning Work

- a. When checking of posted tags is complete, the Authorizing Officer must conduct a check to ensure that, when applicable, the valve/equipment status board(s) accurately reflect(s) the conditions of the tag-out. When modifying a line item that was created prior to implementation of step 1.8.2.c.(1)(b), all tags on the existing line item are to be verified physically hanging prior to commencement of work.
- b. Work shall not be permitted to start until the Authorizing Officer and RA (when applicable) have determined that plant/system conditions are adequate to begin work (e.g. system drained, depressurized, restrained and/or de-energized). The Authorizing Officer is the final authority for commencement of work.
- c. The THS and LIRS (if not using electronic signatures, the electronic system does not support the use of the THS for RA Witness or to document multiple RA's witnessing shared tags) are then filed in the active section of the appropriate tag-out log.

1.6.7 Iterative Tag-outs. The function for issuing iterative multiple tag sets in support of repeated tag-out

S0400-AD-URM-010/TUM Rev level: 08

requirements is not available in the electronic tag-out program. Pre-reviewed repetitive line items can be established using the electronic tag-out program to help facilitate timely establishment of repeated isolation. In those cases where the Commanding Officer or designated representative determines an on-scene Authorizing Officer using an iterative tag-out is required, the manual iterative tag-out process of Appendix K shall be used.

1.6.8 Certified Line Items. Certified line items are tag-outs that have been approved for use for a specific work item with a specific set of ship/system conditions. The Commanding Officer is responsible to determine the scope and use of certified tag-outs. During CNO-scheduled availabilities or for specific systems affected by complex evolutions (e.g., system flushes), certified tag-outs may be invalidated due to system design changes and temporary systems used. Prior to and following their use for these types of availabilities or evolutions, certified tag-outs shall be evaluated for changes required due to system design or configuration changes, or installed temporary power sources or equipment that could alter isolation boundaries. If used for repair activity work, the repair activity will perform an independent 100% validation of any certified tag-out for adequacy and accuracy prior to their use.

a. Preparation

- (1) The certified line item must be prepared, independently reviewed and authorized per paragraphs 1.6, 1.6.1, 1.6.2 and 1.6.3 of this manual, except that paragraphs 1.6.3.b, 1.6.3.c and 1.6.3.d(2) through 1.6.3.d(4) are not applicable.
- (2) The certified line item must be approved by the Department Head prior to initial use. Copies of approved certified LIRS shall be filed and maintained for reference.

b. Use of Certified Line Items

- (1) Using the certified line item as a reference, the preparer creates a new line item for the specific work item. The new line item should reference the certified line item in the **Personnel/Equipment Hazards Involved** block. The preparer signs the **Petty Officer In Charge (POIC)** block of the line item and an independent reviewer signs the **Second Person** block to certify that the work item, ship/system conditions, and maintenance boundaries on the new line item are identical to those specified on the certified LIRS.

NOTE: If using the eTAG-OUT program, when using an unchanged certified line item, the **First Check** field, or **Petty Officer In Charge (POIC)** block, is automatically filled in with the Department Head's name that certified the line item.

- (2) The Authorizing Officer shall also verify the work item, ship/system conditions, and maintenance boundaries on the new line item are identical to those specified on the certified LIRS and authorize the line item for use per paragraph 1.6.3 of this manual. All other Ship's Force roles in the tag-out process, except as noted above in 1.6.8.b.(1), specified in this manual are unchanged.
- (3) For Repair Activity work, all Repair Activity roles in the tag-out process as specified in this manual are unchanged.

c. Maintenance of Certified Line Items

- (1) Certified line items shall be reviewed periodically to validate the tag-out. Prior to use following a system design change, installation/removal of a temporary system, or change in maintenance procedure that could affect the adequacy and accuracy of the tag-out, the certified LIRS shall be revalidated by accomplishing the actions specified in paragraph 1.6.a of this manual.

d. Use of Standard Line Item Function in Electronic Tag-out Program. The standard line item

S0400-AD-URM-010/TUM Rev level: 08

function within the electronic tag-out program may be used to create and maintain a certified line item. The line item must meet all requirements above to be utilized as a certified line item (e.g., documented Department Head approval, periodic validation reviews, etc.).

1.7 MAINTAINING TAG-OUTS

1.7.1 Tag-out Discrepancy and Conflict

- a. If any discrepancy and/or conflict (e.g., missing signatures, wrong component) is noted with a posted tag, the Authorizing Officer and the RA Representative (if applicable) shall be notified immediately.
- b. Violation of any tag compromises the entire tag-out system and could have serious consequences. The Authorizing Officer and RA Representative shall take prompt action to resolve the problem. Based on their evaluation of the circumstances, they should recommend action to the responsible Ship's Force Department Head and cognizant RA supervisor.
- c. The Authorizing Officer shall fully document each discrepancy/conflict and the resolution in their log(s).

1.7.2 Missing or Damaged Tags

- a. Missing or damaged tags shall immediately be reported to the Authorizing Officer (and RA Representative, if applicable) so that prompt corrective action can be taken. Specific amplifications are:
 - (1) Immediate action shall include taking appropriate preventive measures to preclude changes to the item until it can be re-tagged.
 - (2) A verification check shall be performed similar to the check in paragraph 1.7.4.b(6)(c) if the position/condition of a valve is in doubt.
 - (3) The Authorizing Officer and the RA Representative (when applicable) are responsible for taking action and/or recommending to their supervision further action be taken based on their evaluation of the circumstances surrounding a missing or damaged tag.
 - (4) The Authorizing Officer and the RA Representative (when applicable) shall verify plant conditions/system status and determine any effects on plant conditions/system status that may have resulted from changes to the item while the tag was missing/damaged.
- b. Missing Tag Actions. The Authorizing Officer and RA Representative (when applicable) shall take the following actions for a missing tag:
 - (1) If tag is missing, stop affected work and take appropriate action to ensure continued protection of personnel and equipment until replacement tag is posted.
 - (2) Evaluate and take appropriate actions of paragraph 1.7.2.a.
 - (3) Print a replacement tag label and THS. The replacement tag label will have the same tag number as the tag being replaced. For Caution tags, also print a replacement Caution Statement label. If the tag is shared by more than one activity, the Authorizing Officer will notify each RA of the need to witness the replacement of a missing or damaged tag to sign the THS/LIRS, as applicable, for documentation of the RA Witness for the posted tag.
 - (4) Review the entries on the replacement tag and the THS/LIRS for adequacy, completeness, and accuracy and sign the associated blocks on the replacement tag.
 - (5) Cause posting of the replacement tag (see paragraphs 1.6.4 through 1.6.6). If verification of the affected component's position is required, follow the procedure of paragraph

S0400-AD-URM-010/TUM Rev level: 08

1.7.4.b(6)(c).

- c. **Damaged Tag Actions.** The Authorizing Officer and RA Representative (when applicable) shall take the following actions for a damaged tag:
 - (1) Evaluate and take appropriate actions of paragraph 1.7.2.a.
 - (2) Print a replacement tag label and THS. The replacement tag label will have the same tag number as the tag being replaced. For Caution tags, also print a replacement Caution Statement Label. If the tag is shared by more than one activity, the Authorizing Officer will notify each RA of the need to witness the replacement of a missing or damaged tag to sign the THS/LIRS, as applicable, for documentation of the RA Witness for the posted tag.
 - (3) Review the entries on the replacement tag and the THS/LIRS for adequacy, completeness, and accuracy and sign the associated blocks on the replacement tag.
 - (4) Cause posting of the replacement tag (see paragraphs 1.6.4 through 1.6.6) and subsequent removal of the damaged tag. If verification of the affected component's position is required, follow the procedure of paragraph 1.7.4.b(6)(c).
 - (5) After the replacement tag is posted, remove the damaged tag. Document the damaged tag removal on the new THS (e.g., Damaged tag removed. Date ____ Initials ____).
- d. Upon completion of tag posting, checking and witnessing, the THS/LIRS (as applicable) are returned to the Authorizing Officer. The Authorizing Officer reviews the new THS/LIRS for correctness and completeness, and ensures that all tags are indicated as posted, checked, and witnessed if required. The missing or damaged tag is then annotated in Replaced Tag column as replaced (e.g., "damaged-replaced", "missing-replaced") on the original THS for that tag. The Authorizing Officer then initials and dates the Replaced Tag column on the original THS. File the new THS behind the original.
- e. **Relocating Tag Actions.** The steps of paragraph 1.7.2.c above may also be used to relocate a tag on a component (for example relocating a tag from a breaker cover to a breaker) provided positive controls are in place per paragraph 1.7.3.

1.7.3 **Work on Tagged Components.** Work on any component that has a danger tag or caution tag attached is prohibited unless specifically authorized by the Department Head and, when required, the appropriate RA supervisor. When work on a tagged component has been authorized, the following restrictions must be complied with:

- a. Never remove or operate a danger-tagged component. Never remove a caution-tagged component.
NOTE: Raising a mast with a danger-tagged clamp attached, to perform a drift test, does not constitute operating a danger-tagged component.
- b. Work that would be likely to affect component position or position indication, or result in breaching the isolation boundary, is not allowed under any circumstances while working on a tagged component.
- c. Tags shall not be removed while working on a tagged component.

1.7.4 **Audits by Ship's Force**

- a. **Responsibility**
 - (1) The Department Head shall ensure that audits are performed every two weeks. For ships that are in overhaul, conversion, or restricted availability, conduct audits of the propulsion plant tag-out log(s) weekly.
 - (2) The Authorizing Officer shall report the results of tag-out audits to the applicable

SO400-AD-URM-010/TUM Rev level: 08

Department Head.

b. Ship's Force audit of outstanding tags

- (1) Print audit sheets.
- (2) During tag-out audits, determine which THS/LIRS are inactive and place them in the cleared section of the MASTER tag-out log. This determination shall be made by printing a sequential listing of active tags and comparing this listing to the tag(s) listed on the active THS/LIRS in the active section of the MASTER tag-out log.
- (3) Interferences that preclude access to tagged components for auditing should be avoided. Where this is not practical, the tag(s) should be audited just before access is restricted and again when access is regained. Any such instances should be identified in the audit log.
- (4) Issue the audit sheets to personnel performing the audit. The person(s) assigned to conduct the audit will audit tags and return audit sheets with discrepancies to the Authorizing Officer. If personnel audit more than one tag in consecutive order on an audit sheet, they are only required to sign the first line in the "Verified" column. then, they may place their initials in the "Verified" block for the remainder of the tags below the first tag checked.
- (5) Check all outstanding tags on each audit sheet for correct posting. Do this by visually comparing the information on the tag and on the posted component.
- (6) When a component status is specified, visually check that the component is in its proper position unless this requires an operation such as the removal of a cap, closure, or fuse panel cover to ensure fuses have been removed. Amplifications of this requirement are:
 - (a) The position of some valves and switches cannot be verified due to the design and construction of the item. No operation of a valve or switch is authorized as part of a routine tag-out audit.
 - (b) Tag-out audits of typical Navy fuse panels will include a visual inspection for verification the correct fuses were removed, except if conditions exist where there is increased risk of contacting energized conductors during visual inspection of equipment (e.g. when the equipment is in a hard to access area, high sea state exists, etc.). Auditing personnel shall adhere to the requirements of reference (h), paragraph 300-2.5.5.
 - (c) When the actual position of a danger-tagged valve is in doubt, the Authorizing Officer, with specific permission from the responsible Ship's Force Department Head and from the RA Representative, when applicable, may authorize two persons to independently check the position of the specific valve.
 - 1 Check the valve's position per the instructions in the valve manual if applicable, including a visual inspection of the valve position (e.g., position indicator and throw operator position), and, for manual valves other than ball valves, attempting to turn the handwheel/operator a small amount in the shut direction. For manual valves with a detent mechanism or other similar device, slightly move the valve operator (not more than 5 degrees) to verify proper engagement. Locking devices should be manipulated or unlocked as necessary to check the position of the valve.
 - 2 This valve position check shall be performed using the applicable approved procedures for valve lineup checks and, in the propulsion areas of nuclear powered ships, shall be documented on a valve lineup check sheet in accordance with reference (f).

S0400-AD-URM-010/TUM Rev level: 08

- (d) Report all discrepancies in the check of actual position at once to the Authorizing Officer (and RA Representative) before proceeding any further with the tag audit. Appropriate action shall be taken to ensure the continued protection of personnel and equipment.
- (e) Evaluate whether the danger tagged component is located in a high traffic area. If this is the case, inform the Authorizing Officer.
- (7) Record results of tag audits by a line entry on an Audit Report Cover Sheet (see Appendix D, Figure 10). Record the date completed, the discrepancies noted, and the signature of person doing the audit on the Audit Report (see Appendix D, Figure 11).
- c. Ship's Force audit of LIRS (if not using electronic signatures).
 - (1) The Line Item Record Sheets will be audited against the electronic tag-out program (if not using electronic signatures, required for RA Representative Signatures, or RA Witness Initials).
 - (2) Record the results of the audit by a line entry on the Audit Report Cover Sheet (see Appendix D, Figure 10). Record the date completed, the discrepancies noted, and the signature of the person doing the audit. The Authorizing Officer shall annotate on the audit report cover sheet once completed audits are returned.
 - (3) Completed LIRS will be routed to the cognizant department representative (Department Head/Principle Assistant) for review.
- d. Following correction of all discrepancies discovered during the audit process, the cleared line items may be archived. The frequency of electronically archiving line items is at the discretion of the ship. Upon completion of the audit, discard cleared THS/LIRS (as applicable) and TRS records.

1.7.5 **Danger-Tagged Components Found Out of Position or Wrong Component Tagged.** When a danger-tagged component is found out of position or a danger tag is found on the wrong component, the following actions shall be taken:

- a. Report the condition immediately to the Authorizing Officer and RA Representative (if applicable).
- b. Stop affected work, notify Department Head and appropriate RA supervision (if applicable) and take appropriate action to ensure continued protection of personnel and equipment.
- c. Replace the tag using the damaged tag process of paragraph 1.7.2.c, except:
 - (1) Indicate the component was "out of position" or the tag was "on wrong component" in the Replaced Tag block on the original THS/LIRS.
 - (2) Before the replacement tag is posted, the Authorizing Officer shall ensure that the deficient tag is cleared and the component is placed in the appropriate position.
- d. Conduct an investigation to determine the circumstances surrounding a danger tagged component found out of position or wrongly tagged.
- e. The Authorizing Officer and the RA Representative (when applicable) shall verify plant conditions/system status and determine any effects on plant conditions/system status.
- f. Recomence work when authorized by appropriate Ship's Force Department Head and appropriate RA supervision.

S0400-AD-URM-010/TUM Rev level: 08

1.7.6 **Monitoring by U.S. Naval Shipyards/Regional Maintenance Centers (RMC)**. During CNO availabilities, including ship's construction periods when the TUM is invoked, the tag-out process shall be monitored by the Shipyard/RMC. During non-CNO availabilities/upkeep periods, the NSA shall ensure the tag-out monitoring is conducted, as applicable, for the availability/upkeep period. The Shipyard/RMC will establish a process that reviews the tag-out log and ensures proper posted tag checks. The goal of the monitoring is to provide timely data on tag-out performance so emerging adverse trends can be quickly addressed. Any deficiencies found during the monitoring shall be recorded by date, description, and signature entry in a formal Shipyard/RMC document per local guidance.

1.8 **CLEARING TAG-OUTS**

1.8.1 **General**. Remove danger and caution tags immediately when the operation/work line item(s) requiring the tag(s) has been corrected and clearing of tags has been authorized by the Authorizing Officer and RA Representative (when applicable).

1.8.2 **Completion of Operation/Work Items**

- a. As operations/work items are completed, the associated line item shall be cleared. To clear an active line item, open the line item to be cleared. Have the Repair Activity Representative sign the **Repair Activity Rep. (work complete)** block, if applicable. The Authorizing Officer electronically signs the WCS or POIC **(work complete)** block for authorization to clear the line item.
- b. If completing the line item results in no tags to be cleared, the Authorizing Officer will concur with the line item clearance and sign for completion of tag removal.

NOTE: The Assistant Authorizing Officer can also clear line items within a tag-out (for completed work) that would not result in the clearing of any tags.

- c. If the electronic tag-out program determines that any of the tags are not referenced by open line items, **Tags To Be Removed (ESOMS)** or **Approve to Remove (eTAG-OUT)** window will open. Clicking the **Authorize Removal (ESOMS)** button will print the TRS and will change the status of the line item to **Work Complete**, or clicking **Sign (eTAG-OUT)** then manually printing the TRS and the status of the line item will change to **Clearance Authorized**.

- (1) Review the TRS to identify the tags to be cleared. However, if using the ESOMS Program:
 - (a) The TRS cannot be the sole source for determining readiness to clear tags. After signing for work complete, verify all of the tags on the TRS have turned blue under the Line Item Tags tab.
 - (b) Refresh the electronic tag-out program database and verify the Clearances (Tag-out) module tag series "Tagged Components", no longer list the tags in the active section. If tags are still listed in the active section of the "Tagged Components" tab, take actions per paragraph 1.9.1.b.
- (2) Continue with clearing tags per the following paragraphs.

1.8.3 **Position/Condition**. The Authorizing Officer shall fill in the appropriate **Clearance Position/Condition** on the TRS for each of the tags to be removed. If immediate re-positioning of components is required, then specific consideration must be given to the sequence of any valve repositioning and the type, size, and rating of any fuses being reinstalled. Otherwise, repositioning of components shall be accomplished after the Authorizing Officer has verified all tag clearance was accomplished correctly. If a tag is to be removed from a component that has more than one tag attached, the specified position/condition must be compatible with the tagged/position condition. Repositioning of a component with multiple danger tags is never authorized until all danger tags have

S0400-AD-URM-010/TUM Rev level: 08

been cleared.

1.8.4 Authorization

- a. When all line items requiring a tag are cleared as indicated by the tag being listed on the TRS, authorization to remove a tag and intent to reposition the previously tagged item is indicated by signature of the Authorizing Officer in the **Clearance Authorized Authorizing Officer** block of the TRS. If the tag supported Repair Activity work (e.g., Repair Activity Witness block on the THS/LIRS, as applicable, is initiated) then the RA Representative signs the **Clearance Authorized Repair Activity** block. In situations where the RA Representative is no longer available (i.e., RA has completed work and left the geographical area or the ship has departed) the Authorizing Officer may authorize clearing the tag by marking the **Clearance Authorized Repair Activity** block on the TRS as "RA Not Available".
- b. The Authorizing Officer will sign the TRS for clearing tags and to approve the component be placed in the position or condition specified in **Clearance Position/Condition** block of the TRS. The Authorizing Officer shall inform the person clearing the tag if the Authorizing Officer's permission shall be obtained just prior to repositioning the component, in order to sequence the operation of several components.

1.8.5 Removal

- a. Issue the TRS for clearance of tags.
- b. The person assigned shall remove the tag. If immediate repositioning is required and briefed, the person assigned shall place the previously tagged component in the position or condition specified on the TRS. Enter the date/time in the **Date/Time Cleared** block and enter initial in the **Cleared By** block of the TRS. Specific amplifications are:
 - (1) If the person directed to remove a tag finds that the clearance position/condition specified would require repositioning an item which has more than one tag attached, all efforts to remove the tag shall be stopped. The discrepancy shall be reported immediately to the Authorizing Officer, and to the RA Representative.
 - (2) If upon removal of a tag the item is found out of its expected position, all tag removal/restoration efforts for the items shall be stopped. The discrepancy shall be reported immediately to the Authorizing Officer and RA Representative.
- c. Remove all temporary devices that were installed during tag posting per paragraph 1.6.4.a.(5) above.
- d. All tags should be returned immediately to the Authorizing Officer. If a tag is in a location that prevents returning the tag to the Authorizing Officer, such as a radiological or hazardous material containment, the tag may be destroyed and disposed of in the appropriate manner within the containment following an independent verification that the correct tag has been cleared. This independent verification shall be performed by another person assigned by the Authorizing Officer.

1.8.6 Completion of Tag Removal

- a. Upon return of the TRS and the individual tags, the Authorizing Officer must verify that the proper tags were removed and that documentation of their removal was completed on the TRS.
- b. Update the applicable valve status board(s), and then destroy the removed tags. Exercise care when updating applicable valve status boards following removal of tags. A valve may still be tagged (issued by another tag-out log/folder), or it may not be in the normal position specified on the applicable valve status board. The position/condition specified on the TRS for each removed tag must be used for updating the valve status board.

SO400-AD-URM-010/TUM Rev level: 08

c. Open the line item to be cleared,

- (1) For ESOMS, select the Line Item Verification tab, sign on for Tags Removed line and click the Sign On button.

NOTE: Once the line item is updated as **Work Complete**, all tags for that line item will be cleared on the electronic line item sheet. This does NOT necessarily mean the tags are cleared, it means they no longer apply to that line item.

- (2) For eTAG-OUT, Once Ship's Force (and RA, if applicable) state Work is Complete, the AO will select the Approve Tags Removed button. Tags not used by another line item can then appear on the Tags to Remove list.

1.8.7 Completion of Line Item Record Sheet and Tags to be Removed Sheet

- a. When all actions for a LIRS/TRS have been completed, all tags have been cleared and destroyed, and the applicable valve status board(s) updated, the Authorizing Officer will:
 - (1) Notify DC Central, if applicable, that work has been completed.
 - (2) File the completed LIRS (if not using electronic signatures) in the cleared section of the tag-out log binder.
 - (3) File the completed TRS in the cleared section of the tag-out log binder until after completion of the audit of paragraph 1.7.4.b(2).

1.9 VALIDATING THE ELECTRONIC TAG-OUT PROGRAM DATABASE (ESOMS only)

1.9.1 General. If using the ESOMS electronic tag-out program, it may be necessary to move the electronic tag-out program database and/or server during maintenance or upgrade periods or it may be necessary to restore the program database in the event of a server crash. Experience has shown that moving or restoring the database/server has the potential to corrupt the database and cause tags that were previously cleared to appear in the database as active tags ("ghost" tags). The following action is necessary after the electronic tag-out program database and/or server is moved/restored, prior to resuming tag-out processing:

- a. Perform a validation of the electronic tag-out program database to verify there are currently no "ghost" tags. Accomplish this validation by comparing the list of "tagged components" from the electronic tag-out program database to all active line items' associated tags on the Active Tags to be Hung Sheets in the tag-out binder of paragraph 1.5.1.e, verifying that all "tagged components" are associated with active line items. Upon completion of the electronic tag-out database validation, perform a tag-out audit to verify that all active line item tags are actually hanging per paragraph 1.7.4.
- b. If a "ghost" tag(s) is found during the electronic tag-out program database validation or tag-out audit, perform the applicable following situational steps to resolve the "ghost" tag issue.
 - (1) If the "ghost" tag is not part of an active line item, administratively create, hang and clear a line item containing the "ghost" tag to clear the tag from the database per paragraphs 1.6 and 1.8.
 - (2) If the "ghost" tag is part of an active line item, take missing tag actions per paragraph 1.7.2.

NOTE: In both cases, report any "ghost" tag(s) found and corrective action taken via naval message to Immediate Supervisor in Command (ISIC) and Type Commander (TYCOM). ISIC/TYCOM will arrange for any required assistance to the affected unit.